



HIV immunity study could pave way for vaccine development

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Los Alamos scientists among Duke-led consortium

LOS ALAMOS, NEW MEXICO, July 17, 2012—Two Los Alamos National Laboratory scientists are among the team recently funded to explore ways to create the precise immune factors needed for effective vaccines against HIV.

The Duke University-led consortium will largely concentrate on inducing broadly neutralizing antibodies that can prevent HIV-1 infection, as well as on generating protective T-cell and innate immune system responses.

“A vaccine-elicited broadly neutralizing antibody response has the potential to block HIV infection; T-cell responses will support that response, and are likely to be able to help control and contain the virus if it breaks through the neutralizing antibody response,” said Bette Korber, one of the LANL researchers.

“Some HIV infected individuals eventually make good neutralizing responses during their infection,” she noted. The scientists will use the body’s occasional ability to create these antibodies as roadmaps for candidate vaccines to stimulate protective antibody responses. Los Alamos scientists from the theoretical biology group will provide analyses and design.

The research funding is provided through the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH). NIAID originally established CHAVI in response to recommendations of the Global HIV Vaccine Enterprise, a virtual consortium endorsed by world leaders at a G-8 summit in June 2004.

That project was directed towards understanding the human immune response to natural HIV infection and to better understand how to approach a vaccine. Los Alamos scientists worked on that grant as well, helping to understand the evolution of the virus at transmission and the dynamics of the early immune response. The new CHAVI-ID grant now will focus on projects that are critical to creating the most effective vaccines for prevention.

Barton Haynes, M.D., will be the Duke director of the seven-year grant for the Duke Center for HIV/AIDS Vaccine Immunology-Immunogen Discovery (CHAVI-ID).

Haynes previously led the original Center for HIV/AIDS Vaccine Immunology (CHAVI) consortium, the grant for which just ended in June 2012. Scripps Research Institute was also selected as a second center to receive CHAVI-ID grant funding.

“We were privileged to have the CHAVI grant over the past seven years, and the work in this consortium helped us understand what needed to be done to make a successful

AIDS vaccine,” said Haynes, who is also director of the Duke Human Vaccine Institute and the Frederic M. Hanes Professor of Medicine and Immunology. “The CHAVI-Immunogen Discovery grant will be used to learn how to do what we need to do.” Members of the Duke CHAVI-ID Scientific Leadership Group and their participating institutions who submitted the grant with Haynes are Andrew McMichael of Oxford University, UK; George Shaw, University of Pennsylvania; Bette Korber of Los Alamos National Laboratory; Garnett Kelsoe at Duke; and Joseph Sodroski and the late Norman Letvin of Harvard University. Bette Korber and Alan Perelson of Los Alamos will each be leading analysis projects for the new grant at Los Alamos. Approximately 34 million people are living with HIV/AIDS globally, and the rate of new HIV infections continues to exceed 7,100 per day, according to 2010 data from the Joint United Nations Program on HIV/AIDS. In the United States, more than a million people are living with HIV/AIDS, and about 21 percent are unaware of their infection. Although AIDS drugs have extended the lives of many in wealthy nations, according to global health experts, an effective HIV vaccine would be a valuable addition to the comprehensive prevention strategies needed to stop the spread of HIV everywhere.

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